Computers & Structures

An International Journal

List of Contents and Author Index

Volume 75, 2000

PERGAMON

Computers & Structures

An International Journal

Editors

K. J. Bathe
M.I.T., Cambridge
MA, USA

B. H. V. Topping
Heriot-Watt University
Edinburgh, UK

Editorial Advisory Board

N. Akkas
Middle East Technical University, Ankara, Turkey

S. N. Atluri
UCLA, Los Angeles, California, USA

F. Armero
University of California at Berkeley, USA

I. Babuska
University of Texas at Austin, Austin, USA

J.-L. Batoz
Compiegne University of Technology, Compiegne, France

T. Belytschko
Northwestern University, Evanston, USA

D. E. Beskos
University of Patras, Greece

N. Bićanić
University of Glasgow, Glasgow, UK

R. de Borst
Delft University of Technology, Delft, The Netherlands

M. A. Bradford
The University of New South Wales, Sydney, Australia

F. Brezzi
Istituto di Analisi Numerica del C.N.R., Pavia, Italy

M. L. Bucalem
Escola Politecnica da Universidade de São Paulo, São Paulo, Brazil

J. W. Bull
University of Newcastle upon Tyne, Newcastle upon Tyne, UK

G. Carey
University of Texas at Austin, USA

D. Chapelle
INRIA-Rocquencourt, Le Chesney Cedex, France

J.-L. Chenot
CEMEF—Ecole Des Mines de Paris, Sophia Antipolis Cedex, France

Gengdong Cheng
Dalian University of Technology, Dalian, China

Y. K. Cheung
University of Hong Kong, Hong Kong

C. Cinquini
Univerita di Pavia, Pavia, Italy

M. A. Crisfield
Imperial College of Science Technology and Medicine, London, UK

C. S. Desai
University of Arizona, Arizona, USA

J. Donea
University of Liege, Belgium

E. N. Dvorkin
Centre for Industrial Research, FUDETEC, Buenos Aires, Argentina

I. Elishakoff
Florida Atlantic University, Boca Raton, USA

C. A. Felippa
University of Colorado at Boulder, USA

D. M. Frangopol
University of Colorado, Boulder, USA

P. Gaudenzi
Universita di Roma La Sapienza, Rome, Italy

P. Hajela
Rensselaer Polytechnic Institute, Troy, USA

E. Hinton
University of Wales, Swansea, UK

T. J. R. Hughes
Stanford University, Stanford, USA

A. Ibrahimbegovic
E.N.S. de Cachan, Cachan, France

B. L. Karihaloo
University of Wales, Cardiff, UK

E. Kausel
Massachusetts Institute of Technology, Cambridge, USA

A. Kaveh
Iran University of Science and Technology, Tehran, Iran

M. Kawahara
Chuo University, Tokyo, Japan

M. Kleiber
Polish Academy of Sciences, Warsaw, Poland

P. Ladeveze
ENS Cachan, Cachan, France

R. Lewis
University of Wales, Swansea, UK

W. K. Liu
Northwestern University, Evanston, USA

H. A. Mang
Vienna University of Technology, Vienna, Austria

H. Matthies
Technical University Braunschweig, Braunschweig, Germany

J. L. Meek
University of Queensland, Queensland, Australia

U. Meissner
Technische Hochschule Darmstadt, Darmstadt, Germany

C. Meyer
Columbia University, New York, USA

C. A. Mota Soares
IDMEC/IST, Lisboa, Portugal

K. Morgan
University of Wales, Swansea, UK

Z. Mroz
Institute of Fundamental Technological Research, Warsaw, Poland

A. Needleman
Brown University, Providence, USA

A. K. Noor
University of Virginia, Hampton, USA

J. T. Oden
The University of Texas, Austin, USA

R. Ohayon
CNAM, Paris, France

L. Olson
University of Nebraska, Lincoln, USA

E. Onate
CIMNE, Barcelona, Spain

M. Ortiz
Caltech, Pasadena, USA

D. R. J. Owen
University of Wales, Swansea, UK

M. Papadrakakis
National Technical University Athens, Athens, Greece

K. C. Park
University of Colorado at Boulder, Boulder, USA

M. N. Pavlovic
Imperial College London, London, UK

E. Ramm
University of Stuttgart, Stuttgart, Germany

F. Rammerstorfer
Vienna University of Technology, Vienna, Austria

B. D. Reddy
University of Cape Town, South Africa

J. N. Reddy
Texas A&M University, Texas, USA

E. Riks
Delft University of Technology, Delft, The Netherlands

B. Schrefler
University of Padua, Padova, Italy

G. I. Schueller
University of Innsbruck, Austria

M. S. Shephard
Rensselaer Polytechnic Institute, Troy, USA

S. W. Sloan
University of Newcastle, NSW, Australia

E. Stein
Universität Hannover, Hannover, Germany

G. P. Steven
University of Sydney, Australia

B. Szabo
Washington University, St. Louis, USA

P. Le Tallec
University Paris Dauphine, France

J. W. Tedesco
Auburn University, AL, USA

A. B. Templeman
University of Liverpool, Liverpool, UK

G. Thierauf
Universitat GH Essen, Essen, Germany

X. Wang
Polytechnic University, Brooklyn, USA

N. P. Weatherill
University of Wales, Swansea, UK

N. E. Wiberg
Chalmers University of Technology, Goteborg, Sweden

P. Wriggers
Universitat Hannover, Germany

W. Wunderlich
TU München, Germany

G. Yagawa
University of Tokyo, Tokyo, Japan

O. C. Zienkiewicz
University of Wales, Swansea, UK

aims and scope of the journal

The objective of this journal is to communicate recent advances in the development and use of computer methods for the solution of scientific and engineering problems related to hydrospace, aerospace and terrestrial structures. The word structures is interpreted in the broadest sense. The journal is intended to be of interest and use to researchers and practitioners in academic, governmental and industrial communities.

The range of appropriate contributions for the journal is very wide. The scope of the journal includes papers on mathematical modeling and computer methods in all areas of mechanics including structural, fluid, soil and fracture mechanics as well as heat transfer, non-linear dynamics and chaos. Also the solution of problems concerned with multiple media is relevant to the journal including fluid-structure and soil-structure interaction problems. The applications may come from any field of science or engineering including civil, mechanical, ocean, aerospace, automotive, environmental and materials engineering.

The scope also embraces computer-aided design including visualization, idealization, sensitivity and optimization methods; and the journal is concerned with the publication of new computational techniques as used on new and emerging computer hardware.

Papers describing advanced or innovative applications of computers to practical engineering problems are also welcome.

Although the journal will primarily contain authoritative papers describing recent research achievements, it will as well include survey papers reviewing the state-of-the-art in the fields described above, and educational articles of general value to the field.

LIST OF CONTENTS

NUMBER 1

K. J. Bathe, A. Iosilevich and **D. Chapelle**	1	An evaluation of the MITC shell elements
K. Suresh Kumar	31	Prediction of wind-induced fatigue on claddings of low buildings
D. Manickarajah, Y. M. Xie and **G. P. Steven**	45	Optimisation of columns and frames against buckling
O. Sayman, H. Akbulut and **C. Meriç**	55	Elasto-plastic stress analysis of aluminum metal-matrix composite laminated plates under in-plane loading
M. Mofid and **P. Khosravi**	65	Non-linear analysis of disposable knee bracing
J.-R. Lin	73	Squeeze film characteristics between a sphere and a flat plate: couple stress fluid model
Q. Wang and **W. Y. Li**	81	Lateral buckling of thin-walled members with shear lag using spline finite member element method
S. Min, S. Nishiwaki and **N. Kikuchi**	93	Unified topology design of static and vibrating structures using multiobjective optimization
	I	Calendar

NUMBER 2

E. Günay and **A. Karel**	117	Composite design of the diesel engine cylinder with finite element analysis
R. Mahnken, D. Tikhomirov and **E. Stein**	135	Implicit integration scheme and its consistent linearization for an elastoplastic-damage model with application to concrete
T. Tarnai and **J. Szabó**	145	On the exact equation of inextensional, kinematically indeterminate assemblies
Y. Savula, H. Mang, I. Dyyak and **N. Pauk**	157	Coupled boundary and finite element analysis of a special class of two-dimensional problems of the theory of elasticity
O. Sergeyev and **Z. Mróz**	167	Sensitivity analysis and optimal design of 3D frame structures for stress and frequency constraints
G. M. Cocchi	187	The finite difference method with arbitrary grids in the elastic–static analysis of three-dimensional continua

F. Erbatur, O. Hasançebi, İ. Tütüncü and H. Kılıç 209 Optimal design of planar and space structures with genetic algorithms

T.-F. Cheng 225 Numerical analysis of nonlinear multiphase Stefan problems

I Calendar

NUMBER 3

F. Armero and E. N. Dvorkin 235 Editorial

E. P. Kasper and R. L. Taylor 237 A mixed-enhanced strain method
Part I: Geometrically linear problems

E. P. Kasper and R. L. Taylor 251 A mixed-enhanced strain method
Part II: Geometrically nonlinear problems

F. Armero 261 On the locking and stability of finite elements in finite deformation plane strain problems

S. Reese, P. Wriggers and B. D. Reddy 291 A new locking-free brick element technique for large deformation problems in elasticity

E. N. Dvorkin and A. P. Assanelli 305 Implementation and stability analysis of the QMITC-TLH elasto-plastic finite strain (2D) element formulation

D. D. Fox 313 Transverse shear and normal stresses in nonlinear shell theory

K.-U. Bletzinger, M. Bischoff and E. Ramm 321 A unified approach for shear-locking-free triangular and rectangular shell finite elements

I Calendar

NUMBER 4

M. Stojek, M. Markiewicz and O. Mahrenholtz 335 Diffraction loads on multiple vertical cylinders with rectangular cross section by Trefftz-type finite elements

J. Esteban and C. A. Rogers 347 Energy dissipation through joints: theory and experiments

R. Piltner and R. L. Taylor 361 Triangular finite elements with rotational degrees of freedom and enhanced strain modes

E. A. Sadek and S. A. Tawfik 369 A finite element model for the analysis of stiffened laminated plates

A. K. H. Kwan and **W. T. Chan** 385 Effective stiffness of coupling beams connected to walls in out-of-plane directions

C. Saravanan, N. Ganesan and **V. Ramamurti** 395 Vibration and damping analysis of multilayered fluid filled cylindrical shells with constrained viscoelastic damping using modal strain energy method

M. Farid and **S. A. Lukasiewicz** 419 Dynamic modeling of spatial manipulators with flexible links and joints

I Calendar

NUMBER 5

K. J. Bathe, A. Iosilevich and **D. Chapelle** 439 An inf-sup test for shell finite elements

P. Kumar 457 Finite element method computations in unbounded domains with nonzero but uniform far field decay

C. S. Cai and **P. Albrecht** 463 Flutter derivatives based random parametric excitation aerodynamic analysis

Q. Q. Liang and **B. Uy** 479 Theoretical study on the post-local buckling of steel plates in concrete-filled box columns

J. Qiu and **Z. C. Feng** 491 Parameter dependence of the impact dynamics of thin plates

A. El-Hamalawi 507 A simple and effective element distortion factor

K. T. Chen, K. Ting and **W. S. Yang** 515 Stress analysis of two-dimensional perforated plates using boundary element alternating method

M. A. Crisfield and **V. C. Norris** 529 Lessons for incompressible and near-incompressible elasticity drawn from the driven cavity flow problem

B. Y. Duan, A. B. Templeman and **J. J. Chen** 539 Entropy-based method for topological optimization of truss structures

I Calendar

NUMBER 6

iii Obituary

D. Pantuso, K. J. Bathe and **P. A. Bouzinov** 551 A finite element procedure for the analysis of thermo-mechanical solids in contact

C. Saravanan, N. Ganesan and **V. Ramamurti** 575 Study on energy dissipation pattern in vibrating fluid filled cylindrical shells with a constrained viscoelastic layer

E. Nikolaidis, L. Long and **Q. Ling** 593 Neural networks and response surface polynomials for design of vehicle joints

Y. Y. Li, L. H. Yam, K. T. Chan and **T. P. Leung** 609 Robust synthesis of active controller for thin plate systems with parameter uncertainties

J. Y. Meng and **E. M. Lui** 619 Torsional effects on short-span highway bridges

G. E. Stavroulakis and **H. Antes** 631 Nonlinear equation approach for inequality elasto-statics: a two-dimensional BEM implementation

C. A. Coello and **A. D. Christiansen** 647 Multiobjective optimization of trusses using genetic algorithms

I Calendar

III List of contents and author index for Volume 75, 2000